

What is claimed is:

1           1.     A projection unit comprising:  
2           a projector including a wide-angle lens system, the projector positioned  
3     substantially adjacent a display surface and configured to generate an image on the  
4     display surface; and  
5           a moveable element supporting the projector configured to enable selective  
6     lateral positioning of the projector.

1           2.     The projection unit of claim 1, wherein the moveable element is configured  
2     to position the projector in one of a storage position and an operation position.

1           3.     The projection unit of claim 2, where the projector is configured to project  
2     an image at a steep angle to a wall in the operation position.

1           4.     The projection unit of claim 2, where the projector is configured to project  
2     an image at a steep angle to a screen in the operation position.

1           5.     The projection unit of claim 4, wherein the projector is configured to  
2     project an image to the screen at an angle of at least 30 degrees.

1           6.     The projection unit of claim 1, further comprising a screen positioned  
2     substantially adjacent the projector.

1           7.     The projection unit of claim 6, wherein the screen is moveable between at  
2     least a first position and a second position.

1           8.     The projection unit of claim 1, wherein the wide angle lens system  
2     includes a relay lens stage adapted to generate a distorted intermediate image and a  
3     wide angle lens stage adapted to substantially cancel the distortion of the distorted  
4     intermediate image.

1           9.     The projection unit of claim 1, wherein the wide angle lens system defines  
2     an image path whereby the image path includes a change in direction.

1           10.    The projection unit of claim 7, wherein the image path includes an  
2     approximately 180-degree change in direction.

1           11.    The projection unit of claim 1, wherein the projector further comprises a  
2     focus device adapted to bring the image into focus when the projector is in one of a first  
3     lateral position and a second lateral position.

1

1           12.    A projection unit comprising:  
2                a body, wherein the body comprises  
3                a selectively-positionable screen to display an image, the screen  
4   positionable in a first position and a second position; and  
5                a laterally-moveable projector positioned substantially adjacent the screen  
6   and configured to project an image to the screen, the laterally-moveable projector  
7   further adapted to be positioned in first lateral position and a second lateral position.

1           13.    The projector unit of claim 12, wherein the first lateral position of the  
2   projector and second lateral position of the projector are operable positions.

1           14.    The projector unit of claim 12, wherein one of the first lateral position of  
2   the projector and the second lateral position of the projector is a storage position.

1           15.    The projector unit of claim 12, wherein the projector is mounted on a  
2   slidable element.

1           16.    The projector unit of claim 15, wherein the slidable element is a drawer.

1           17.    The projector unit of claim 12, where the projector is configured to project  
2   an image at a steep angle to the screen.

1           18.    The projector unit of claim 12, wherein the projector includes a lens  
2    system having at least two planar direction changing elements.

1           19.    The projector unit of claim 12, wherein the projector includes a lens  
2    system having a wide angle lens stage.

1           20.    The projector unit of claim 12, wherein screen is a Fresnel-lens type  
2    screen.

1           21.    The projector unit of claim 12, wherein one of the first screen position and  
2    the second screen position is a rolled position.

1           22.    A system comprising:     /  
2                a moveable screen; and  
3                a front projector slidably coupled to said movable screen, said front  
4    projector including a lens system having at least two folds and projecting an image onto  
5    said moveable screen at an angle of at least 30 degrees.

1           23.    The system of claim 22 wherein the lens system further comprises a wide  
2    angle lens system having a first stage to create a distorted intermediate image and a  
3    second, wide angle lens stage that causes distortion to substantially cancel the  
4    distortion of the intermediate image and to project a substantially non-distorted image  
5    corresponding to the intermediate image on said screen.

1           24.    The system of claim 22 wherein the lens system creates the at least two  
2   folds via a first prism and a second prism.

1           25.    The system of claim 22 wherein the movable screen may be positioned in  
2   a rolled position.

1           26    The system of claim 22 wherein the front projector slides perpendicular to  
2   said movable screen.

1           27.    The system of claim 22 wherein the front projector is removably coupled to  
2   the system.

1           28.    The system of claim 22 wherein the front projector is coupled to said  
2   moveable screen by a slidable drawer.

1           29.    The front projection display device of claim 22, wherein the front projector  
2   is configured to project the image onto said moveable screen at an angle between 30  
3   and 80 degrees toward the screen.

1           30.    The front projection display device of claim 22, wherein the screen is  
2   configured to receive the image from a substantially steep angle and reflect the light  
3   back along a substantially horizontal plane.

1           31.    The front projection display device of claim 22, wherein the screen is a  
2 Fresnel lens type screen.

1           32.    An entertainment center comprising:  
2           a support structure;  
3           a moveable screen mounted to the support structure; and  
4           a front projector slidably coupled to the support structure such that the front  
5 projector is substantially adjacent the screen to project an image to the screen at an  
6 angle of at least 30 degrees, said front projector further including a lens system defining  
7 an optical path which changes direction by approximately 180 degrees.

1           33.    The entertainment center of claim 32, wherein the lens system includes a  
2 wide angle lens stage.

1           34.    The entertainment center of claim 32, wherein the screen is moveable  
2 between an open position and a storage position.

1           35.    A projection unit comprising:  
2           a screen;  
3           a projector adapted to project an image at a steep angle to the screen; and  
4           a means for providing relative motion between the screen and the projector to  
5 position the projector and screen in at least a first position and a second position.

1           36.    The projection unit of claim 35, wherein the means for providing relative  
2 motion between the screen and the projector include slidably moving the projector  
3 substantially perpendicular to the screen.

1           37.    The projection unit of claim 35, wherein the means for providing relative  
2 motion between the screen and the projector include moving the screen a select  
3 distance from the projector.

1           38.    An entertainment center comprising: ✓  
2           a support structure; and  
3           a front projector slidably coupled to the support structure such that the front  
4 projector is substantially adjacent a viewing surface to project an image to the viewing  
5 surface at an angle of at least 30 degrees.

1           39.    The entertainment center of claim 38, wherein the lens system includes a  
2 wide angle lens stage.

1           40.    The entertainment center of claim 38, wherein said front projector further  
2 including a lens system defining an optical path which changes direction by  
3 approximately 180 degrees.

1           41.    The entertainment center of claim 38, wherein the viewing surface  
2 includes a wall.

1           42.    The entertainment center of claim 38, wherein the viewing surface  
2 includes a screen.

1           43.    A projection unit comprising: /  
2           a projector adapted to project an image at a steep angle to a viewing surface;  
3           and  
4           a means for providing relative motion between the viewing surface and the  
5 projector to position the projector and viewing surface in at least a first position and a  
6 second position.

1           44.    The projection unit of claim 43, wherein the means for providing relative  
2 motion between the viewing surface and the projector includes slidably moving the  
3 projector substantially perpendicular to the viewing surface.

1           45.    The projection unit of claim 43, wherein the viewing surface includes a  
2 wall, and the projector includes a wide angle lens stage.